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10/025,017	12/19/2001	Li Shu	DPL-026	5849

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EXAMINER	
VU, THONG H	

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,017	SHU ET AL.	
	Examiner	Art Unit	
	Thong H Vu	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-36 are pending.

2. Applicant response filed on 3/28/05 is consider and persuasive. The Restriction was withdrawn.

Specification

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. The abstract of the disclosure is objected to because it does not describe the key of invention which related to encrypted routing message information, data assurance and network security. Correction is required. See MPEP § 608.01(b).

5. Claims 8,29 recite the limitation "splitting the file into a plurality of message segments " in claims 8, 29. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

6. Claims 1,6,8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: disguise /encode /encrypt/ camouflage file/ address traffic pattern.

7. Claims 1,6,8,27,29,33 are objected to because of the following informalities: The inconsistent limitations in the base claims which may provide to the tendency to different inventions. Appropriate correction is required.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 1,6,8 recite the broad recitation

"a file splitting message assigned addresses to a receiving host", and the claims 27,29,33 recite the message segments were encoded which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-32 are rejected under 35 U.S.C. 102(e) as anticipated by Pirovano et al [Pirovano, 6,167,045].

9. As per claim 1, Pirovano discloses An apparatus for transmitting a file through a network, comprising:

a file-splitting processor that splits the file into a plurality of message segments and addresses the plurality of message segments to a plurality of addresses assigned to a receiving host [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67 et seq.]; and

a message segment transmitter for transmitting the plurality of message segments to the receiving host [Pirovano, a unique identifier; col 4 lines 47-67; receiver address ID, col 5 lines 1-65, et seq.].

10. As per claim 2, Pirovano discloses the file splitting processor comprises a file converter (i.e.: encoder) that converts the file into N message segments that enable reassembly of the file from a subset of any K of the message segments, wherein N and K are positive integers, and N >K >1 [Pirovano, encoded packets, col 4 lines 23-27; assembled in to data blocks, data encryption, col 7 line 59-ol 8 line 1-9].

11. As per claim 3, Pirovano discloses the file-splitting processor further assigns a plurality of source addresses to the plurality of message segments to impede unauthorized attempts to observe the true source of a transmitted file [Pirovano, unknonwn value, col 7 lines 35-58].

12. As per claim 4, Pirovano discloses a message segment monitor for detecting non-receipt of at least one of a second plurality of message segments transmitted to the apparatus [Pirovano, unknonwn value, col 7 lines 35-58].

13. As per claim 5, Pirovano discloses an address allocator for assigning and reassigning N addresses to the receiving host [Pirovano, packet address is received and compared, col 7 lines 35-58].

14. As per claim 6, Pirovano discloses An apparatus for transmitting a file through a network, comprising:

a file-splitting processor that splits the file into a plurality of message segments and assigns a plurality of source addresses to the plurality of message segments to disguise (i.e.: hidden) the origin of the file [Pirovano, identifies the address of terminal, col 5 lines 1-63; encryption, col 8 lines 1-9]; the file will be hidden to the user, col 8 lines 9]; and a message segment transmitter for transmitting the plurality of message segments to a receiving host [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67 et seq.].

15. As per claim 7, Pirovano discloses addresses the plurality of message segments to a plurality of addresses assigned to the receiving host [Pirovano, identifies the address of terminal, col 5 lines 1-63].

16. As per claim 8, Pirovano discloses A method of secure transmission of a message through a network, comprising:

(a) splitting the file into a plurality of message segments [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67 et seq.];

(b) addressing the plurality of message segments to a plurality of addresses assigned to a receiving host [Pirovano, identifies the address of terminal, col 5 lines 1-63]; and

(c) transmitting the plurality of message segments to the receiving host [Pirovano, transmit the data, col 4 lines 10-67].

17. As per claims 9, Pirovano discloses addressing the plurality of message segments in one-toone correspondence to at least a portion of the plurality of addresses [Pirovano, identifier the address of the receiver, col 54 lines 23-46].

18. As per claim 10, Pirovano discloses splitting the file comprises converting the file into N message segments that enable reassembly of the file from a subset of any K of the message segments, where N and K are positive integers, and N >K >1 and inherent feature of encoded packets [Pirovano, col 4 lines 23-28].

19. As per claim 11 Pirovano discloses (d) assigning N addresses to the receiving host, and wherein the step of addressing comprises addressing the N message segments to the N addresses assigned to the receiving host [Pirovano, identifies the address of the called terminal, col 5 lines 58-63].

20. As per claim 12, Pirovano discloses causing the receiving host to cease receiving messages via at least one address upon detection of an attack on the at least one address [Pirovano, test the unknown value, col 7 lines 35-57].

21. As per claim 13, Pirovano discloses the receiving host is permitted to cease receiving messages via no more than (N-K) addresses, thereby ensuring reassembly of the file by the host [Pirovano, authorized, col 8 lines 55-67].

22. As per claim 14, Pirovano discloses (e) causing the receiving host to split a reassembled file into N message segments; and (f) causing the receiving host to transmit the N message segments from the N addresses [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67 et seq.].

23. As per claim 15 (d) causing the receiving host to retransmit the plurality of message segments [Pirovano, retransmission, col 8 lines 10-32].

24. As per claim 16, Pirovano discloses causing the receiving host to retransmit comprises causing the receiving host to retransmit the plurality of message segments to at least two of a plurality of hosts to relay (i.e.: convey) the plurality of message segments along more than one path through the network as inherent feature of broadcasting network.

25. As per claim 18, Pirovano discloses (d) assigning a plurality of source addresses to the plurality of message segments to impede unauthorized attempts to observe a true

source of a transmitted file [Pirovano, test the unknown value, col 7 lines 35-57].

26. As per claim 19, Pirovano discloses causing the receiving host to receive at least a portion of the plurality of message segments; reassemble the file from the received message segments; split the reassembled file into a second plurality of message segments; and transmit the second plurality of message segments [Pirovano, de-assembled, col 5 lines 12-22; assembled, col 7 lines 59-col 8 line 9].

27. As per claim 20, Pirovano discloses (c) transmitting comprises transmitting the plurality of message segments to one of an intermediate host and a destination as inherent feature of broadcasting network.

28. As per claim 21, Pirovano discloses (c) transmitting comprises transmitting from one of a source and an intermediate host (i.e.: relay node) as inherent feature of broadcasting network.

29. As per claim 23, Pirovano discloses (d) assigning N addresses to the receiving host; and (e) repeatedly changing at least a portion of the N addresses [Pirovano, retransmission, col 8 lines 10-32].

30. As per claim 24, Pirovano discloses (d) repeatedly changing at least a portion of the addresses assigned to the receiving host while leaving at least K of the addresses

unchanged [Pirovano, retransmission, col 8 lines 10-32], and (e) notifying at least a portion of the network of the changed addresses, and wherein the step of addressing comprises addressing the plurality of message segments to at least the K unchanged addresses to permit continuous receipt of messages by the receiving host [Pirovano, detecting a packet, col 9 lines 4-10].

31. As per claim 26, Pirovano discloses (d) encoding the file to produce an encoded bit file having encoded bits [Pirovano, encryption, col 8 lines 1-9], and (e) scrambling the encoded bits, and wherein the step of splitting the file splits the encoded bit file [Pirovano, encoded packets, col 4 lines 22-28].

32. As per claim 27, Pirovano discloses a method of secure transmission of a file through a network, comprising:

(a) splitting the file into a plurality of message segments [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67];

(b) assigning a plurality of source addresses to the plurality of message segments to disguise (i.e.: hidden) the origin of the file [Pirovano, identifies the address of terminal, col 5 lines 1-63; hidden, encryption, col 8 lines 1-9]; and

(c) transmitting the plurality of message segments [Pirovano, transmitting the data, col 4 lines 10-16].

As per claim 28, Pirovano discloses (d) addressing the plurality of message segments to a plurality of addresses assigned to a receiving host [Pirovano, assigned address, col 4 lines 40-47].

33. As per claim 29, Pirovano discloses A method of secure transmission of a message through a network, comprising:

(a) splitting the file into a plurality of message segments, each message segment comprising a destination specifier, protocol information and message data, the protocol information and message data being encrypted [Pirovano, the plurality of messages split into data packets, col 2 lines 20-52;col 3 lines 25-57; col 4 lines 47-67; encryption, col 8 lines 1-9];

(b) causing a message segment to be received by a receiving host [Pirovano, transmitting the data, col 4 lines 10-16];

(c) causing the receiving host to decrypt the routing information to determine a downstream destination host [Pirovano, decode of any called terminal, col 5 lines 29-33];

(d) causing the receiving host to encrypt the routing information and message data in accordance with an encryption protocol accessible to the destination host, and to transmit the thus-encrypted message segment to the destination host [Pirovano, encryption, col 8 lines 1-9]; and

(e) repeating steps (a)-(d) for other message segments to facilitate recovery of the message by an ultimate destination host [Pirovano, retransmission, col 8 lines 10-32].

34. As per claim 30, Pirovano discloses the message segment has a length, and further comprising causing the receiving host to alter the length [Pirovano, total length, replace the corrupted one, col 8 lines 9-32].

35. As per claim 31, Pirovano discloses causing the receiving host to negotiate with the destination host to determine the encryption protocol [Pirovano, encryption, col 8 lines 1-9].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

36. Claims 22,25,32,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirovano et al [Pirovano, 6,167,045] in view of Kocher et al [Kocher 6,640,305 B2]

37. As per claim 22, Pirovano discloses unknown value [Pirovano, test the unknown value, col 7 lines 35-57]. However Pirovano does not detail the unknown value as

(d) causing the receiving host to monitor non-receipt of at least one of the plurality of message segments to **detect tampering** with message segment transmission.

Kocher discloses a protection method and apparatus including CrytoFirewall filtering before sending messages [Kocher, col 9 line 18-col 10 line 40]; notify the device that an audit is needed, replace address [Kocher, col 12 line 1-67]; tamper-resistant unit [Kocher, col 2 lines 45-52]

Therefore it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the CrytoFirewall with tamper-resistant, notify the device that an audit is needed, replace address as taught by Kocher into the Pirovano's apparatus in order to utilize the encryption process. Doing so would enhance the security on the message content over network.

38. As per claim 25, Pirovano-Kocher disclose (d) causing a sending host to add status information concerning itself to the message segment [Pirovano, a new entry is added, col 7 lines 7-30]; and (e) causing the receiving host to interpret the status information to **detect tampering** with message segment transmission [Kocher, tamper-resistant unit, col 2 lines 45-52].

As per claim 32, Pirovano-Kocher disclose causing the receiving host to add status information concerning itself to the message segment [Pirovano, a new entry is added, col 7 lines 7-30; test the unknown value, col 7 lines 35-58], and causing the receiving

host to interpret the status information to **detect tampering** with message segment transmission [Kocher, tamper-resistant unit, col 2 lines 45-52].

39. As per claim 17, Pirovano discloses (d) selecting as a virtual network a plurality of hosts (i.e.: address) that includes the receiving host as a design choice [see Foley reference]; and (e) assigning each one of the plurality of hosts to one of a plurality of domains [Pirovano, identifies the address of terminal, col 5 lines 1-63; hidden, encryption, col 8 lines 1-9], and wherein the step of transmitting comprises permitting each one of the plurality of message segments to travel to the receiving host only via relays between host pairs, each one of the host pairs selected from one of a same domain and a neighboring domain [Kocher, CrytoFirewall filtering before sending messages col 9 line 18-col 10 line 40. It was a clearly that the firewall as a relay node permits the message segments travel between the node pairs].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirovano et al [Pirovano, 6,167,045] in view of Gervais et al [Gervais, 5,856,974].

40. As per claim 33, Pirovano discloses A method of defining and operating a network topology to camouflage network traffic patterns and volume, the network comprising a plurality of hosts, the method comprising:

(a) assigning each one of the plurality of hosts to one of a plurality of domains [Pirovano, identifies the address of terminal, col 5 lines 1-63];

c) distributing traffic across the network, thereby camouflaging (i.e.: encrypting, hidden) message sources and destinations [Pirovano, encryption, col 8 lines 1-9].

An Official Notice is taken that a file/message was splitted into a plurality of packets wherein each packet includes a source address, a destination address; and a gateway/router/firewall/proxy node provides encoder/decoder functions were well-known in the art.

However Pirovano deos not detail (b) permitting message transmission from each host to hosts within the domain of the host or a domain that neighbors the domain of the host, thereby defining multiple redundant relay paths among hosts;

A skilled artisan would have motivation to improve the encryption process on Pirovano's apparatus and found Gervais teaching.

Gervais discloses an Internetwork address mapping gateway wherein the transmit data between a source node and a destination node through routers including encoding formats and splits the packet into separate message [Gervais, col 2 lines 10-51; col 12 lines 52-57]

Therefore it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the Internetwork address mapping gateway as

taught by Gervais into the Pirovano's apparatus in order to extent the encryption process to the neighbor domain supported by a gateway. Doing so would provide a secure address information and reliable routing information over large network.

41. As per claim 35, Pirovano discloses (d) assigning a plurality of addresses to each one of the plurality of hosts; reassigning the plurality of addresses from a pool of addresses [Pirovano, retransmission, col 2 lines 20-53;col 3 lines 25-57;col 8 line 10-32; a list of addresses, col 6 lines 50-59]; and notifying the plurality of hosts of the reassigned plurality of addresses [Pirovano, generate an enabling signal, col 10 lines 5-10].

42. As per claim 36, Pirovano discloses reassigning (i.e.: retransmitting) comprises reassigning only a portion of the plurality of addresses at any one time to permit use of a remaining unreassigned portion of the plurality of addresses while notifying the plurality of hosts of the reassigned plurality of addresses [Pirovano, retransmission, col 2 lines 20-53;col 3 lines 25-57;col 8 line 10-32].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirovano et al [Pirovano, 6,167,045] in view of Gervais et al [Gervais, 5,856,974] and further in view of Yates et al [Yate, 6,167,438].

43. As per claim 34, Pirovano-Gervais disclose the assign address [Pirovano, identifies the address of terminal, col 5 lines 1-63]; encryption [Pirovano, encryption, col 8 lines 1-9]; and an Internetwork address mapping gateway wherein the transmit data between a source node and a destination node through routers including encoding formats and splits the packet into separate message [Gervais, col 2 lines 10-51; col 12 lines 52-57]. However Pirovano-Gervais did not explicitly detail

(d) reassigning (i.e.: retransmitting) at least one of the plurality of hosts to a different one of the plurality of domains, thereby changing network traffic patterns.

In the same endeavor, Yate discloses a network environment including the load splitters from a provider [col 4 lines 52-58; col 16 lines 55-60]; encoded/decoded data [col 6 lines 18-30; col 18 lines 21-36]; manage traffic path [col 8 lines 20-28]; retransmit packets [col 12 lines 1-11]; informs the received packets and replaces address [col 13 lines 40-50]

Therefore it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the technique of informing/notifying the received node, replacing address and managing traffic path as taught by Yates into the Pirovano-Gevais' s apparatus in order to utilize the distribution process to the neighbor domain supported by a gateway. Doing so would reduce the bottleneck on network traffic and provide a reliable routing message over large network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Thong Vu, whose telephone number is (571)-272-3904. The examiner can normally be reached on Monday-Thursday from 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Rupal Dharia*, can be reached at (571) 272-3880. The fax number for the organization where this application or proceeding is assigned is 703-872-9306

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval IPAIRI system. Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thong Vu
Patent Examiner
Art Unit 2142